

IME
**Plus Three
Phase
Network
Multifunction
Energy
Meter**



IME D4 L Plus Three Phase Network Multifunction Energy Meter Owner's Manual

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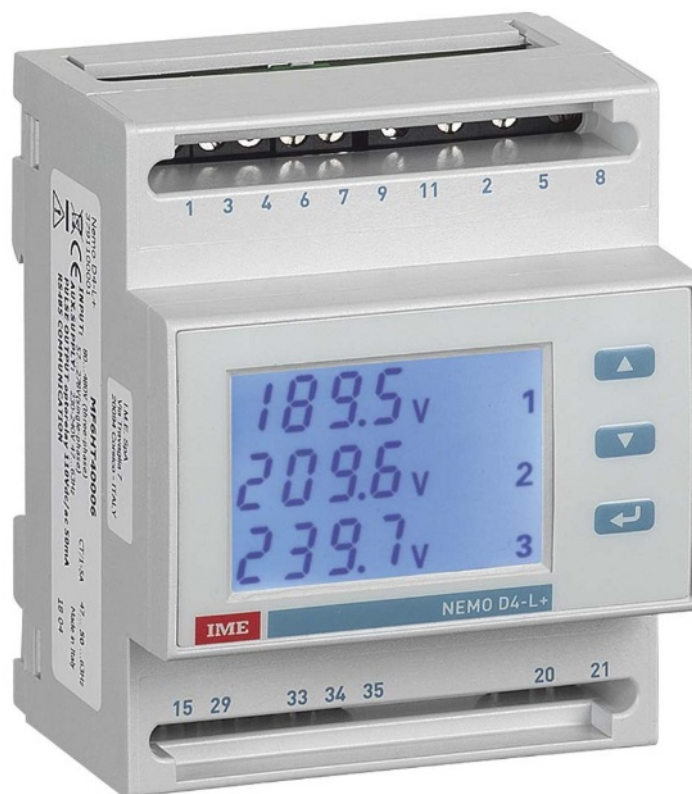


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IME D4 L Plus Three Phase Network Multifunction Energy Meter



F: 0,5A gG

NOTE

- The wiring diagrams show the device complete with pulse output and RS485 interface.
- In case of version without these features, the corresponding terminals must not be considered.

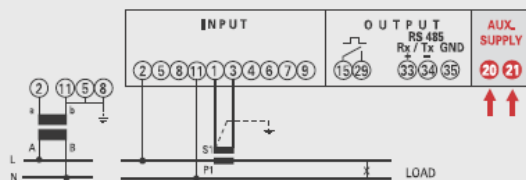
ATTENTION!

Aux. supply must be connected to terminals 20 and 21

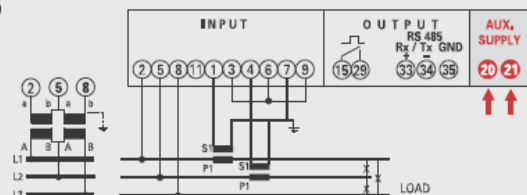
Mounting instructions

- This product must be mounted according to the mounting rules and preferably by a skilled electrician. Possible wrong mounting and/or misuses of the device may involve the risk of electric shock or fire.
- Before mounting, please carefully read the instructions and find a mounting place which fits its functions. Do not open, dismantle, tamper or modify this device except for the special mention reported in the manual.
- All the IME's products must be opened and repaired only by personnel properly trained and authorized by IME.
- Any unauthorized opening or repair leads to the exclusion of every responsibility, rights to replacement and guarantees.
- Please make sure that the data on the label (measuring voltage, extra supply voltage, measuring current, frequency) correspond to the network on which the meter must be connected.
- In the wiring scrupulously respect the wiring diagram; an error in connection unavoidably leads to wrong measurements or damages to the device.
- When the meter is connected, conclude the mounting with the configuration as described in the user's manual.

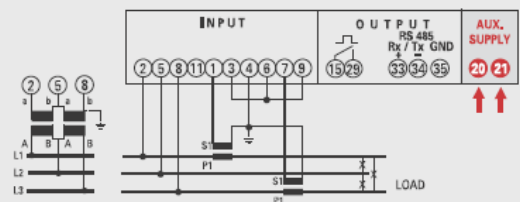
S 1000/305
1N1E



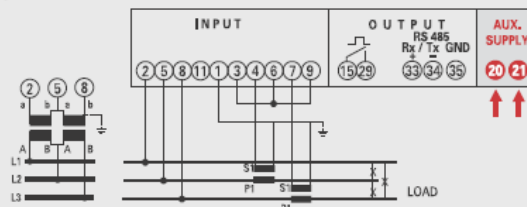
S 1000/306
3-2E
(L1-L2)



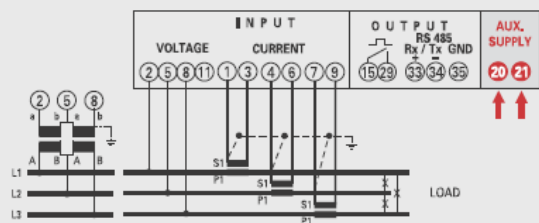
S 1000/307
3-2E
(L1-L3)



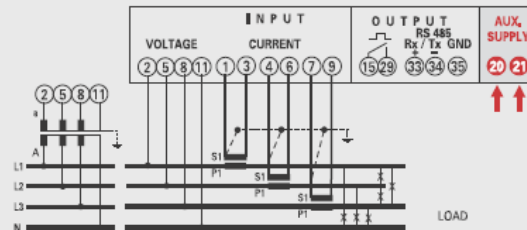
S 1000/308
3-2E
(L2-L3)



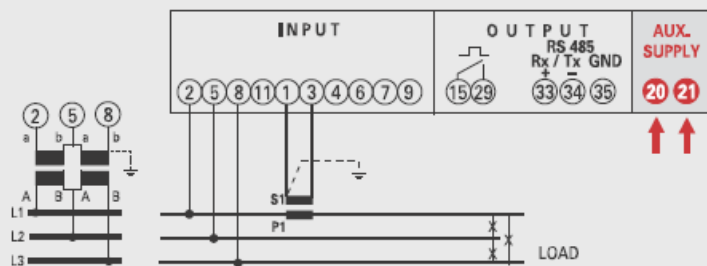
S 1000/309
3-3E



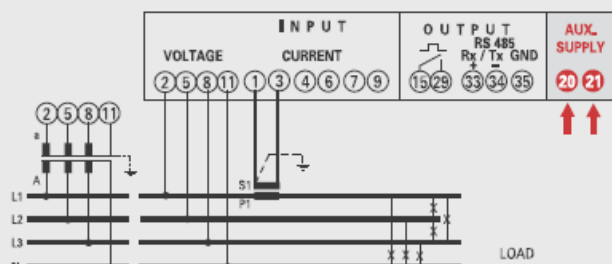
S 1000/310
3N3E



S 1000/357
3-1E

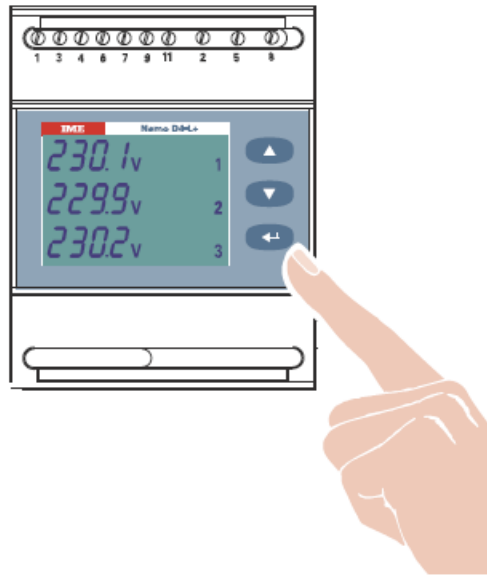


S 1000/358
3N1E



Programming

Menu is divided on two levels, protected by two different numerical passwords. Programming is carried out by front keyboard 3-key



- **Increases the loaded value**

In the pages with choice among the fixed values, it scrolls the loadable values



- **Moves the cursor**



- **Confirms**

Level1

Password = 1000

1. Password
2. Resets
3. Connection
4. Average power
5. Current delay time and average power
6. RS485 ModBus RTU/TCP or BACNET communication (where provided)
7. Energy pulses (where provided)
8. Display contrast

Level 2

Password = 2001

1. Password
2. External CT and VT ratio

Programmable Parameters

Level1

Password = 1000

Resets

Possibility to reset the performed counts 1.1a Partial Active energy

- Current Max Demand
- Power Max Demand
- Hour Meter (working minutes and hours)

Run hour function, working minutes and hour counting, is operating when the device detects L 1 phase.

Connection

The meter can be used for single phase or three phase 3- and 4-wire network.

The selectable connections are:

Symbol	Line	Load	n'CTexternal	Wiring	Connection
1N1E	Single-phase			S 1000/305	
3-1E	3-phase 3 wires	Balanced		S 1000/357	
3N1E	3-phase 4 wires	Balanced		S 1000/358	
3-2E	3-phase 3 wires	Unbalanced	2	S 1000/306	Aron L1 – L2
3-2E	3-phase 3 wires	Unbalanced	2	S 1000/307	Aron L1 – L3
3-2E	3-phase 3 wires	Unbalanced	2	S 1000/308	Aron L2 – L3
3-3E	3-phase 4 wires	Unbalanced	3	S 1000/309	
3N3E	3-phase 4 wires	Unbalanced	3	S 1000/310	

Power demand

Combined power: active, reactive, apparent

Current delay time and average power

Selectable delay time: 5, 8, 10, 15, 20, 30, 60 minutes

The selected time is valid both for the current and the average power

RS485 communication (where provided)

According to the models, this meter can be without communication or equipped with RS485 ModBus RTU/TCP or RS485 BACNET communication

RS485 ModBus RTU/TCP communication

- Address number 1 ... 255
- Transmission speed: 4,8-9,6-19,2 kbit/s
- Parity bit: none -even -odd
- Waiting time before answer: 3 ... 1 00ms

It is usually advisable to load 003 (3ms). If, in the connection to other interfaces the communication is lacking, try to increase the value.

RS485 BACNET communication

- Address number: 0 ... 127
- Transmission speed: 9,6-19,2 -38,4- 76,8 kbit/s
- Parity bit: none -even -odd
- Network address: 0 ... 65535

Energy pulses (where provided)

- Quantity that can be coupled: active or reactive energy
- Pulse weight: 1 imp/0, 1 kWh(kvarh) – 1 kWh(kvarh) – 1 0kWh(kvarh) -1 00kWh(kvarh)
- Width of the pulse: 50 -100 -200 -300ms

Display contrast

Selectable values: 0 ... 10

Level 2

Password = 2001

External VT and CT ratio

- a = External primary/secondary CT ratio (ex. CT BOO/SA $C_t= 160$)
- V_t =External primary/secondary VT ratio (ex. VT 600I100v $V_t= 6$)
 - External CT ratio (C_t): 1 ... 9999
 - External VT ratio (V_t): 1,0 ... 400,0
 - Limit produced ratios $CT \times VT$ ($C_t \times V_t$): 100000($CT/5A$)-400000($CT/1A$)
 - For voltage direct connection (with external voltage transformer) load $V_t=1,0$
 - By modifying the CT and/or VT ratios, the KWH meters are automatically reset

Phase sequence checking



- Pressing ENTER key (in any of the display pages) you can check the correct connection of the volumetric (phase sequence).
- If the connection is right, the display doesn't change.
- If the connection is wrong, Err 123 is displayed. In the case you have to modify the volumetric connection and

repeat the checking until you get the correct sequence.

ATTENTION!




A wrong phase sequence may leads to measuring errors.

Password 1000

Keep simultaneously pressed the 2 keys  +  until you display page:



Load password 1000 and confirms

-  moves the cursor
-  increases the loaded value
-  confirms






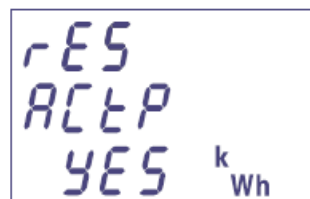
Resets

Possibility to reset the performed counts

Partial Active Energy

Reset no (no) or yes (YES)

-   selects no or YES
-  confirms

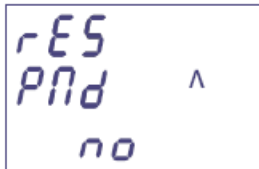


Current Max. Demand

Reset no (no) or yes(YES)



- ▲▼ selects no or YES
- ↵ confirms



Power Max. Demand

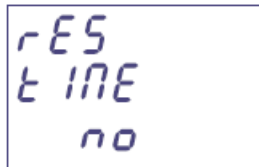
Reset no (no) or yes(YES)

- ▲▼ selects no or YES
- ↵ confirms

Run Hour Meter (working hours and minutes)

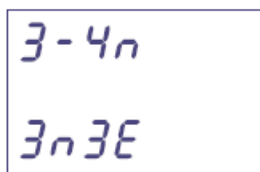
Reset no (no) or yes(YES)

- ▲▼ selects no or YES
- ↵ confirms



Connection

- ▲▼ selects the connection
- ↵ Confirms



Select the desired connection and scrupulously respect the linked wiring diagram. The selectable wiring diagrams are:

Symbol	Line	Load	n'CTexternal	Wiring	Connection
1N1E	Single-phase			S 1000/305	
3-1E	3-phase 3 wires	Balanced		S 1000/357	
3N1E	3-phase 4 wires	Balanced		S 1000/358	
3-2E	3-phase 3 wires	Unbalanced	2	S 1000/306	Aron L1 – L2
3-2E	3-phase 3 wires	Unbalanced	2	S 1000/307	Aron L1 – L3
3-2E	3-phase 3 wires	Unbalanced	2	S 1000/308	Aron L2 – L3
3-3E	3-phase 4 wires	Unbalanced	3	S 1000/309	
3N3E	3-phase 4 wires	Unbalanced	3	S 1000/310	

Power Demand

Combined power: activate (W), reactive (VAr), apparent (VA)

- ▲▼ selects power
- ↩ confirms



Current delay time and average power

- **Selectable delay time:** 5, 8, 10, 15, 20, 30, 60 minutes
- The selected time is valid both for the current and the average power
- ▲▼ selects the time value
- ↩ confirms





RS485 Communication (where provided)

According to the models, this meter can be without communication or equipped with RS485 ModBus RTU / TCP or RS485 BACNET communication.

RS485 ModBus RTU / TCP Communication



Address number: 1 ... 255

- ▼ moves the cursor

-  increases the loaded value
-  confirms



Addr
001

Transmission speed: 4,8- 9,6 -19,2 kbit/s

-  selects speed
-  confirms




bAud
4.8 k

Parity bit: none – even – odd

-  selects parity
-  confirms

PAR
none

Waiting time before answer (time-out): 3 ... 100ms

-  moves the cursor
-  increases the loaded value
-  confirms

tOUT
nSEC
003

It is usually advisable to load 003 (3ms). If, in the connection to other interfaces the communication is lacking, try to increase the value.

RS485 BACNET Communication

Address: 0 ... 127

- ▼ moves the cursor
- ▲ increases the loaded value
- ↵ confirms

Addr
001

Transmission speed: 9,6-19,2-38,4- 76,8 kbit/s

- ▲▼ selects speed
- ↵ confirms

bAUD
4.8 k

Parity bit: none – even – odd

- ▲▼ selects parity
- ↵ confirms

PAR
none

Network address: 0 ... 4000

- ▼ moves the cursor
- ▲ increases/decreases the loaded value
- ↵ confirms

net
d2-L
0010

Energy pulses (where provided)

Quantity that can be coupled: active or reactive energy

- ▲▼ selects active / reactive
- ↵ confirms



PULS
TYPE
Wh



PULS
TYPE
VAr h

Pulse weight: 1 Pulse /0, 1 kWh(varh)-1kWh(kvarh) – 10kWh(kvarh) – 100kWh(kvarh)

- ▲▼ selects pulse weight
- ↵ confirms



PULS
URL
000.1 k
Wh

Width of the pulse: 50 -100 -200 -300ms

- ▲▼ selects width of the pulse
- ↵ confirms



PULS
dur
0050

Display Contrast



Selectable values: 1 ... 10




- ▲▼ selects the value
- ↵ confirms



Cont
0001

Password 2001




Keep simultaneously pressed the 2 keys  +  until you display page: Load password 1000 and confirms

-  moves the cursor
-  increases the loaded value
-  confirms



External CT ratio




ct = external primary/secondary CT ratio (ex.: CT sootsA ct= 160) External CT ratio (Ct): 1 ... 9999

-  moves the cursor
-  increases the loaded value
-  confirms



Rapporto TV esterni

Vt= external primary/secondary VT ratio (ex.: TV 600I100v Vt= 6) External VT ratio (Vt): 1,0 ... 400,0

-  moves the cursor
-  increases the loaded value
-  confirms



Limit produced ratios CT x VT (Ct x Vt): 100000 (CT/SA) – 400000(CT/1A) For voltage direct connection (with external voltage transformer) load Vt=1,00 By modifying the CT and/or VT ratios, the KWH meters are automatically reset.



- XXXXv 1

- XXXXv 2
- XXXXv 3

Phase current

- xxxx A 1
- XXXX A 2
- XXXX A 3

linked voltage

- xxxx k W 1
- xxxx k W 2
- xxxx k W 3

Phase active power

- xxxx VAk 1
- XXXX VAk 2
- XXXX VAk 3

Phase reactive power

- XXXX Σ
- xxxx A
- xxxx hz

Active power

Reactive power

Apparent power

- XXXX Σ
- xxxx A
- xxxx PF

Neutral current

Frequency

Power factor

- XXXXA 1
- xxxx A 2

- xxxx A 3

Phase current demand

- xxxx A 1
- xxxx A A 2
- xxxx A 3

Phase current –demand

- xxxx kPm
- xxxx kA

POWER demand

POWER Max. demand

- tCNE
- xxxx h
- XX M

Working hours

Working minutes

- XXXXv % 1
- XXXXv 2
- XXXXv 3

Harmonic distortion phase voltage

- xxxx A % I
- XXXX A
- XXXX A

Harmonic distortion phase current

- xxxx Wh
- xxxx k

ACTIVE energy

- rER
- xxxx
- XXXX k VAr h

Reactive energy

- ACEP
- xxxx
- XXXX k wh

Partial active energy

- XXXX v Σ
- XXXX v
- XXXX v

Linked voltage

- xxxx A 1
- xxxx A 2
- xxxx A 3

Phase-current

- XXXX VA Σ
- XXXX
- XXXX

Active power

Reactive power

Apparent power

- xxxx Hz
- xxxx PF

Frequency

Power factor

- XXXX A m 1
- XXXX A 2
- XXXX A 3

Phase current demand

- xxxx A
- xxxx A A 2

- xxxx A 3

Phase current max demand

- xxxx kP wm
- xxxx kA w

Power Max. demand

Power demand

- tINE
xxx h
- XXM

Working hHrs

Working minutes

- XXXX v % 1
- XXXX v 2
- XXXX v 3

Harmonic distention phase voltage

- xxxx A % 1
- xxxx A 2
- xxxx A 3

Harmonic distention phase voltage

- ACt
- xxxx
- xxxx k Wh

Active energy

- rER
- XXXX r
- XXXX v f h

Reactive energy

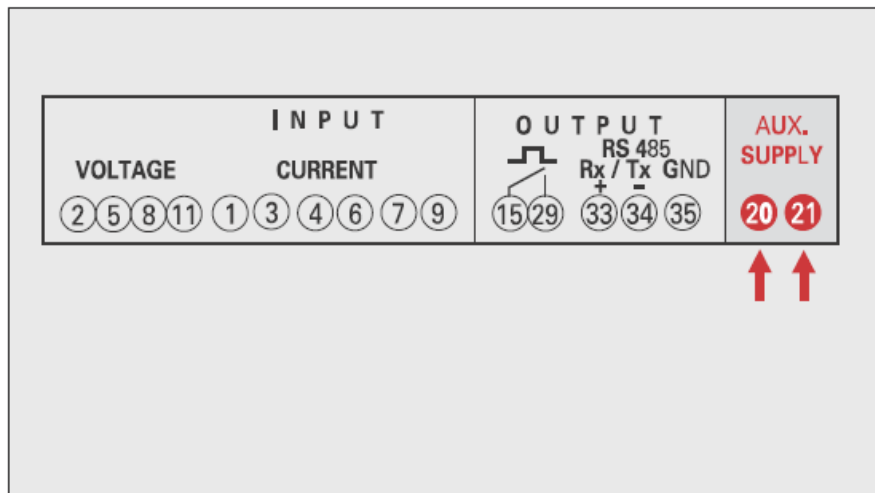
- ACEP
- xxxx

- xxxx k Wh

Partial active energy

Auxiliary Supply

- Terminals 20 and 21
- Auxiliary supply: direct or alternating current electrical supply which is necessary for proper working of the device.
- Please verify that the available supply voltage meets the one shown on the data label of the meter (voltage value and any frequency).
- Where a double voltage is shown (for instance 48Vac 120 ... 1 sovdc) the meter can be fed with alternating voltage 48Vac or direct voltage 20 ... 150Vdc.
- In case of direct voltage supply please respect the shown polarities 20+ and 21.



Factory setting

Password 1000

Connection: 3n3E 4-wires 3-system line Average time:15m 15 minutes Delay time: W

- RS485
- Address: 255
- Speed: 9.6k
- Parity: none
- Time-out: 3ms

BACNET

- Address: 01
- Speed: 9.6k
- Parity: none
- Network Address: 0010

Pulse output

- Energy: Wh
- Pulse weight: 0, 1 kWh
- Width of the pulse: 50ms
- Display contrast: 0010

Password 2001

- CT ratio: 0001
- VT ratio: 001,0

Documents / Resources



[IME D4 L Plus Three Phase Network Multifunction Energy Meter](#) [pdf] Owner's Manual
D4, L Plus, D4 L Plus Three Phase Network Multifunction Energy Meter, Three Phase Network Multifunction Energy Meter, Network Multifunction Energy Meter, Energy Meter

References

- [User Manual](#)

Manuals+. [Privacy Policy](#)

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